

# INTERNATIONAL SEARCH REPORT

Inter<sup>na</sup>tional Application No  
PCT/IB 03/05777

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H01J61/33 H01J61/82

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 150 337 A (TOSHIBA LIGHTING & TECHNOLOGY) 31 October 2001 (2001-10-31) abstract paragraphs '0057! - '0064!; figures 11,12 paragraph '0085! - paragraph '0086!	1,2,6-8
X	EP 0 483 507 A (GTE PROD CORP) 6 May 1992 (1992-05-06) abstract	1,3,6,7
Y	page 4, line 12 - page 5, column 55; figures 1-3; table 1 page 2, line 8 - line 52	4
Y	EP 0 982 760 A (MATSUSHITA ELECTRONICS CORP) 1 March 2000 (2000-03-01) paragraph '0059!; figure 14	4
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

'A' document defining the general state of the art which is not considered to be of particular relevance  
'E' earlier document but published on or after the international filing date  
'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
'O' document referring to an oral disclosure, use, exhibition or other means  
'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  
'&' document member of the same patent family

Date of the actual completion of the international search

24 June 2004

Date of mailing of the international search report

02/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Lang, T

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 935 668 A (HANSLER RICHARD L ET AL) 19 June 1990 (1990-06-19) column 5, line 2 - line 42; figure 5 -----	1-3,6-8
P,X	EP 1 315 197 A (PHILIPS INTELLECTUAL PROPERTY ;KONINKL PHILIPS ELECTRONICS NV (NL)) 28 May 2003 (2003-05-28) abstract paragraphs '0035! - '0062!; figures -----	1-3,6,8
A	US 6 069 456 A (LANG DIETER ET AL) 30 May 2000 (2000-05-30) abstract column 4, line 24 - line 63 -----	1,2,4,6
A	EP 0 443 964 A (WELCH ALLYN INC) 28 August 1991 (1991-08-28) page 3, line 4 - line 44; tables 1-3 -----	1,3,4,6
A	GB 1 337 134 A (GEN ELECTRIC) 14 November 1973 (1973-11-14) page 3, line 116 - line 122 -----	1

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: -

1) The terms "asymmetrical discharge space", "asymmetrical discharge vessel", and "the asymmetry" in claim 1 are vague and unclear. The discharge space/vessel of the embodiment of figure 1 of the application has two symmetry planes (the drawing plane of figure 1, and a plane perpendicular to the lamp axis intersecting the middle of the discharge space). Thus, if the term "asymmetrical" were to exclude all symmetries, claim 1 would lack support in the description and drawings (Art. 6 PCT). If not, it is unclear which shapes should be considered as "asymmetric" and which as "symmetric".

2) Further features of apparatus claim 1 refer to the process of designing the claimed lamp, comprising rules for choosing a discharge volume and a quantity of light-generating substances, namely:

(a) the discharge space has a volume which is reduced by a given first factor in comparison with the volume of the discharge space of known mercury-containing discharge lamps, and

(b) obscuration of portions of the luminous discharge arc and/or of portions of the electrodes by light-generating substances not evaporated in the operational state is prevented in that the quantity of the light-generating substances in the discharge space is reduced by a second factor which is determined in dependence on the value of the first factor and on the distance, defined by the asymmetry, of the electrodes (3) to a bottom surface (10, 11) that is lowermost in the operational position of the lamp

Rule (a) is unclear because of the intended comparison to "known mercury-containing lamps": The number of such lamps, which were known at the priority date of this application, is so vast that it either places an undue burden on the public or is even entirely impossible to determine the range of volumes implied by this comparison. Further, it is definitely impossible to know in advance which mercury-containing lamps will become known in the future.

Rule (b) is unclear already because of its reference to the unclear terms "the first factor" (see objections to rule (a)) and to "the asymmetry" (see item 1 above).

Moreover, rule (b) refers to a result to be achieved ("obscuration ... by ... substances not evaporated ... is prevented"), and to "a bottom surface that is lowermost in the operational position", during the use of the claimed lamp. These expressions are unclear since the operational parameters of the lamp (e.g. supply voltage, and consequently the vessel temperature) as well as the operational position of the lamp may vary and need not be fixed by the claimed lamp as such.

Further, the terms in rule (b) "determined in dependence on ..." and "defined by ..." are highly vague and unclear, since they imply any

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

arbitrary kind of dependence (it is unclear which).

3) For these reasons, present claim 1 lacks clarity within the meaning of Article 6 PCT to such an extent as to render a meaningful search of the claim impossible. The description does not clarify the scope of claim 1: Page 3, lines 1-3, only gives an example of volumes of known lamps of the invention (and does not explicitly mention any quantity of light generating substances); page 6, lines 7-9 only gives another singular example of a "usual" volume and quantity.

Consequently, the search has been carried out for those parts of the application which do appear to be clear, namely the volume specified in claim 3 and the quantity specified in claim 4.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

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## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No  
PCT/JP 03/05777

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC1/1B 03/05777

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		FR 2077012 A5	15-10-1971
		NL 7100341 A ,B,	28-07-1971

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
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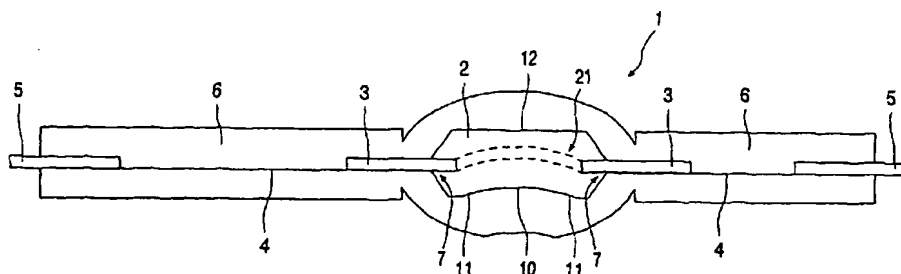
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8 July 2004 (08.07.2004)

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(10) International Publication Number  
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- (71) Applicant (*for DE only*): **PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-damm 94, 20099 Hamburg (DE).
- (71) Applicant (*for all designated States except DE, US*): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): **HAACKE, Michael** [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE). **POSTMA, Pieter** [NL/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE).
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- (88) Date of publication of the international search report: 26 August 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: HIGH-PRESSURE GAS DISCHARGE LAMP



(57) Abstract: A high-pressure gas discharge lamp (HID [high intensity discharge] lamp) is described which is in particular free from mercury and suitable for use in automobile technology. The lamp is remarkable in particular for a discharge space (2) which has a volume which is reduced by a given factor in comparison with the volume of the discharge space of known mercury-containing discharge lamps. The quantity of the light-generating substances in the discharge space (2) is reduced by the same factor in the simplest case, or even more strongly. This avoids the risk of an impairment of the imaging properties of the lamp because of non-evaporated light-generating substances which may shade off a portion of the luminous discharge arc (21) and/or the tips of the electrodes (3).

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